

Spring 2017 Retreat
Center for Molecular Signaling and Center for Redox Biology and Medicine
Wake Downtown Auditorium; 4th floor

8:30 Continental Breakfast

9:00 Welcome and Overview of CMS and CRBM Activities

9:15-9:35 Dany Kim-Shapiro, Physics, “Red Blood Cell Mediated Nitrite Signaling in Diabetes”

9:35-10:15 Keynote Speaker: Bruce A. Freeman, Irwin Fridovich Professor and Chair of the Department of Pharmacology and Chemical Biology at University of Pittsburgh. "Pulling New Drug Candidates from the Fires of Inflammation.”

10:15-10:40 Coffee Break

10:40-10:55 Alexandria Harkey, Muday Group, Biology “Time Course Transcriptomics to Identify Transcription Factor Networks That Control Development”

10:55-11:10 Bree LaPoint, John Group, Computer Science “Genetic Algorithms Exploring Gene Interactions”

11:10- 11:30 Tom Hollis, Biochemistry “A Redox Mechanism for Regulation of dNTP Metabolism by SAMHD1”

11:30-11:45 Reetta Holmila, Furdui Group, Internal Medicine-Molecular Medicine, “Mitochondria-targeted Probes for Protein Sulfenylation”

11:50-12:35 Lunch: First floor lobby

12:45-1:15 Sarah McDonald, Virginia Tech Carilion Research Institute and soon to be WFU Biology “Rotavirus RNA Polymerase Regulation”

1:15-1:30 Fadi Marayati, Zhang Group, Biology “The Role of the Exon Junction Complex in Fission Yeast Meiosis”

1:30-1:50 Peter Antinozzi, Biochemistry, “From Basic Research to Clinical Trials: Accelerating the Therapeutic Development Pipeline with Customized Computational Tools

1:50-2:10 Rong Chen, Physiology and Pharmacology, “Modulation of G-protein Compartmentalization and Signaling by Brain Cholesterol in Animal Models of Addiction”

2:10-2:30 Coffee break

2:30-2:50 Pierre Vidi, Cancer Biology, “Elevated Leptin Disrupts Epithelial Polarity and Primes Cancer Initiation in the Mammary Gland”

2:50-3:10 Ravi Singh, Cancer Biology, “High ZEB1 Expression Identifies A Subset of Mesenchymal Breast and Other Cancers That Are Sensitive to Low Doses of Silver Nanoparticles”

3:10-3:30 Vidula Vacharajani, Anesthesiology, “Redox Signaling of Specific Cysteine Thiols on NAD⁺- dependent SIRT2 Controls An On/Off Switch for Regulating Inflammation”

3:30-5:00 Poster Session and wine and cheese reception

Optional Breakout session: 3:50-4:10 CRBM Planning for Redox NIGMS T32 application

POSTER SESSION

1. Ines Batinic-Haberle, Radiation Oncology, Duke University Medical Center, E-mail: ibatinic@duke.edu

Redox-active Mn porphyrins, MnTE-2-PyP5+ and MnTnBuOE-2-PyP5+, but not redox-inert MnTBAP3-, suppress tumor growth in an environment where H₂O₂ is produced.

2. Brady Buchanan, Biology, Wake Forest University, E-mail: buchbb13@wfu.edu

Uncovering protein networks in microbial systems: A possible functional link between protein translation and the biosynthesis of Fe-S cluster in *Azotobacter vinelandii*

3. David Clarke, Biology, NC A&T, E-mail: dmcclarke4@gmail.com

The impact of oxidation and glutathionylation on Protein Kinase C alpha global substrate selection

4. Xiaofei Chen, Internal Medicine - Molecular Medicine, WFSM, E-mail: xichen@wakehealth.edu

Discovery of a new class of biologically compatible thiol-selective reagents

5. Cristina Furdui, Internal Medicine - Molecular Medicine, WFSM, E-mail: cfurdui@wakehealth.edu

Integration of redox regulated signaling and metabolism in Head and Neck Cancer

6. Tyler Hinshaw, Physiology and Pharmacology, WFSM, E-mail: THinshaw@wakehealth.edu

Amphetamine self-administration alters the cholesterol content and GÎ± protein membrane compartmentalization in rat brain

7. Monica Jenks, Cancer Biology, WFSM, E-mail: mzapata@wakehealth.edu

Loss of tissue polarity and ROS accumulation is a 3D culture model of obesity-induced cancer initiation

8. Bincy Anu John, Cancer Biology, WFSM, E-mail: bjohn@wakehealth.edu

Global profiling of SPARC-regulated metabolic pathways in ovarian cancer

9. Deborah Luessen, Physiology and Pharmacology, WFSM, E-mail: djluesse@wakehealth.edu

RGS2 modulates the selection of GÎ±i/o subtype involved in dopamine D2 receptor signaling

10. Joelle Muhlemann, Biology, WFU, E-mail: muhlemjk@wfu.edu

Flavonols enhance the development and heat stress response of pollen through their antioxidant activity

11. Lindsay Macnamara, Chemistry, WFU, E-mail: lmacnama@wakehealth.edu

Experimental and computational dynamics of an Aminoacyl-tRNA Synthetase system

12. Marc Muraski, Chemistry, WFU, E-mail: muraskmj@wfu.edu

Study of the *Mycoplasma penetrans* Aminotransferase Domain

13. Emil Nilsson, Chemistry, WFU, E-mail: nilsem15@wfu.edu

TilS mutations improve bacterial fitness during metabolomic stress in *Burkholderia cenocepacia*

14. Evan Pardue, Biology Department, NC A&T, E-mail: ejpardue@aggies.ncat.edu

Impact of Redox Modification on the Substrate Selectivity of PKC-B

15. John Petersen, Biology, WFU, E-mail: petejo13@wfu.edu

Evidence for specialized calcium trafficking in a muscle that controls rapid woodpecker displays

16. Melissa Srougi, Department of Chemistry, High Point University, E-mail: msrougi@highpoint.edu

Exploiting NQO1 bioactivatable quinones for targeted breast cancer therapy

17. Artak Tovmasyan, Department of Radiation Oncology, Duke University Medical Center, E-mail: artak.tovmasyan@duke.edu

Comprehensive study of GPx activity of different classes of redox-active therapeutics - implications for their therapeutic actions

18. James Tucker, Biology, WFU, E-mail: jtucker@wakehealth.edu

A novel role for 5' to 3' exoribonuclease Dhp1/Rat1/Xrn2: epigenetic silencing

19. Robert Wieland, Internal Medicine - Molecular Medicine, E-mail: rwieland92@gmail.com

Redox Regulation of Akt2 in Breast Cancer and Diabetes

20. Jiajie Xiao, Physics, WFU, E-mail: xiaoj12@wfu.edu

Probing the mechanism of the switch of the fast and slow forms of thrombin via molecular dynamics simulations